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**IMPACT MONITORING AND
EVALUATION PLAN FOR THE
COCHABAMBA REGIONAL
DEVELOPMENT PROJECT
(CORDEP)**

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DRAFT WORKING DOCUMENT

**Impact Monitoring and Evaluation Plan
for the
Cochabamba Regional Development Project (CORDEP)
USAID/Bolivia**

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GENESYS

Monitoring the Impact of CORDEP

I. Rationale for the Monitoring and Evaluation Plan

Increasingly, Congress demands that A.I.D. justify its budget on the basis of results. CORDEP falls under the USAID Bolivia Alternative Development Strategic Objective ("Bolivia economy transformed from significant dependence on coca/cocaine production") and is expected to show how it contributes to achieving this objective.

The attached charts are a draft plan for CORDEP to collect and document project impact. The data that CORDEP must report for the Strategic Objective indicators are included in this plan as are the indicators that CORDEP has agreed to present in the Semi-Annual Review (SAR). In addition, the plan lays out a logical format to organize project information so that project managers can assess the contribution of project components to project results. To a large extent it uses information already available to the project and organizes it so that it will be accessible and useful to project management.

Impact vs. Process Indicators

This plan focuses on "impact" indicators only. The project already has a format to monitor "process" indicators that track project activities and expenditures. Process indicators are important for short-term management decisions and to measure compliance with the workplan and budget.

Impact indicators monitor the effect of the activities - what we got for the money rather than how we spent it. The indicators show whether the project is moving toward what it expects to accomplish. Impact indicators are important for medium and long-term management. They provide the input and the justification for decisions about design, cut-backs, funding allocations, etc. Both process and impact indicators are needed for effective management. For example, it is important to know how many hectares are being irrigated as well as the impact of irrigation on production.

Presenting the Project to Outsiders

Managers immersed in day-to-day project decisions know where the problems are and more or less whether the project is on track. Impact data give them documentation to back up their assertions about project effectiveness, an overview of the way project parts fit together, and a definition of the project to present to others. CORDEP is a high profile project and is constantly under scrutiny. The indicators help managers show the logic of project decisions to outsiders.

II. The Draft Plan for Monitoring and Evaluation of Impact

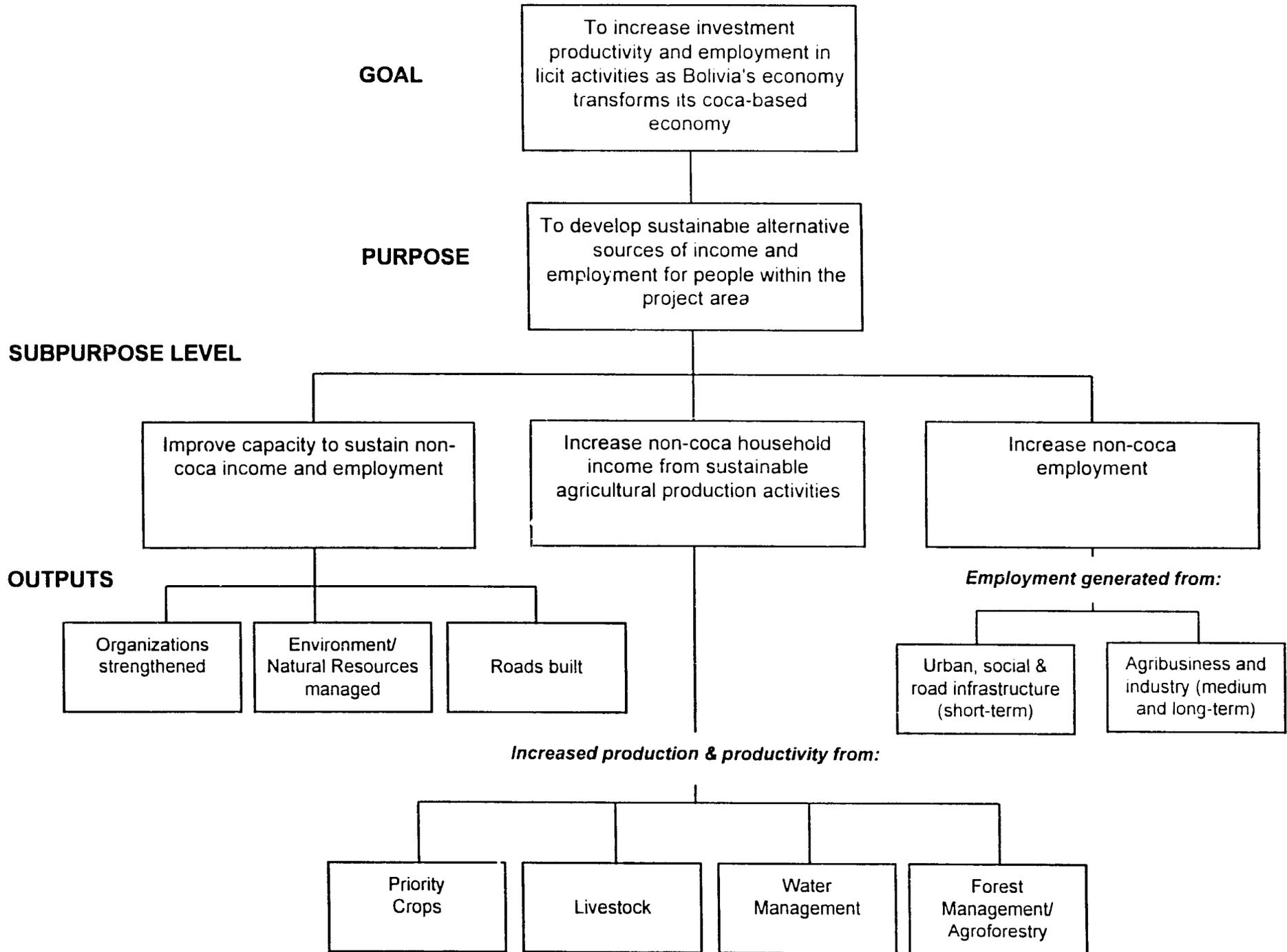
Steps in Developing the Plan

First, a hierarchical objective tree (see attached) was drawn to show graphically what the project expects to accomplish and the steps in the process. Measuring the impacts in a hierarchy of objectives allows the project to show progress toward its purpose and goal even if change at this top level is difficult to document. The broad project purpose, "to develop sustainable alternative sources of income and employment for people within the project area," is broken down into three sub-purposes in order to monitor the component parts and inputs expected to contribute to this broad purpose. Accomplishing each of the sub-purposes should lead to increased employment and income opportunities. For example, increased farm income should be reflected in increased household income. Then, moving down the tree, increased net income from banana production, or increased productivity due to irrigation should contribute to increased farm income.

The sub-purpose, "to improve the capacity to sustain non-coca income and employment," is not expected to be reflected in increases in household income during the life of the project but rather to insure that these sources of income and employment continue to be viable over time. Three aspects of the project focus on maintenance of income and employment: physical infrastructure, local institutional capacity, and environmental and natural resource base. (These generally derive from the Sustainable Small Farm Production Component in the project paper.)

The second step was to organize the information in a format that fits the project structure so that it can be collected, analysed, reported, and used as a part of project activities. Each institution funded under CORDEP has a workplan and a budget. One option is to measure the impacts of each institution separately, assuming that if each meets its targets, the overall purpose of increased incomes and employment will be served. A second option is to measure the impacts of programs, assuming that all institutions are working on common activities (like a banana program) to achieve certain outputs (increased production, quality, exports) that contribute to the project purpose. This second option was adopted in the objective tree.

This objective tree should correspond to a CORDEP workplan, but does not supplant workplans for individual institutions. Further, program impacts cannot be used to evaluate the effectiveness of particular institutions. The impacts measure the effectiveness of the project as a whole.



ALTERNATIVE DEVELOPMENT

SO1

Bolivian economy transformed from significant dependence on coca/cocaine production:

Indicators

- 1 - Size of coca exports as a percentage of legitimate exports (source: GOB)
- 2 - Illegal coca as a percentage of legal economy (source: GOB)
- 3 - GDP growth rate (source: GOB)

Program Outputs

Increased non-coca employment and foreign exchange

Indicators

- 1 - Nontraditional export sales attributable to USAID assistance (source: Export Promotion, FOCAS, CORDEP, PAO)
- 2 - Permanent jobs created by firms/individuals receiving USAID services (M/F) (Source: FOCAS, Exp. Pro., micro & small enterprise)*
- 3 - Temporary jobs generated with USAID resources in Department of Cochabamba (M/F) (source: CORDEP/PL-480/SNC)
- 4 - Temporary jobs generated with USAID resources outside Department of Cochabamba (M/F) (source: FOCAS, PAO, Exp. Pro., micro & small enterprise)

Increased non-coca economic opportunities in the Chapare

Indicators

Hectares of non-coca crops planted in Chapare with USAID assistance (source: CORDEP)

Increased public support & participation in counter-drug programs

Indicators

People who believe drug production and trafficking constitute a problem for Bolivia (source: Drug Awareness)

CORDEP

* CORDEP does not contribute to this indicator

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Components

The plan is presented in a series of charts that correspond to the objective tree. The charts show precisely how each indicator is defined, the source of data to measure each variable, and how often it is to be examined. They also assign institutional responsibility for data collection, analysis, and reporting for each indicator. Measurement issues are discussed in footnotes in the charts.

It is important to emphasize that an indicator is only a variable. Its utility depends entirely on interpretation of what it shows and why, and how it is related to other indicators. Someone needs to be designated specifically to carry out this analysis and interpretation task and to feed the information back into the project management and decision-making process.

The three basic sources of impact information are: (1) project-funded surveys, the Rural Household Survey and the Chapare Production Survey; (2) data collected by the product committees to monitor programs in accordance with the product marketing plans; and, (3) special studies. Special studies are suggested to answer questions for which data cannot be collected on an on-going basis because of the cost or level of effort required. Some of these studies are based on data from the surveys.

Baseline Measures

A second set of charts fills in the baseline values for the indicators, to the extent possible, to illustrate how existing information is to be used and additional data to be collected. Baseline data are used to set project targets and to show initial relationships among variables. They show, for example, households in the Chapare rely much more on cash farm income than households in the Valleys. Impact is measured and evaluated in terms of change, however, and requires measurement at more than one point in time. Baseline measures also may be helpful in editing the plan. Indicators may be added or subtracted depending in part on ease in gathering the information.

III. Use of Surveys for Monitoring and Evaluating CORDEP

For CORDEP to be cost-effective in stimulating income- and employment-generating opportunities in the Department of Cochabamba, its management needs to know the kinds of policies, programs, and projects that are likely to be most efficacious in raising the incomes of different types of rural households.

Two surveys are used to track project impacts through periodic reporting on household incomes, employment, and production levels: a survey of rural households in the Department of Cochabamba, baseline in 1991; and a survey of agricultural

production units in the Cochabamba Tropics (the area commonly referred to as the Chapare which includes the tropical regions of the Chapare, Carrasco, and Tiraque Provinces), baseline in June 1993.

The household survey provides information on income and employment for rural farm and non-farm households. It was designed to measure household income, correlate income levels with a series of socioeconomic variables, and to provide a picture of sources of employment and income for men and women members of rural households. The principal objective of the survey was to assess the relative potential and impact of different agricultural policies on the economic welfare of rural households in Cochabamba. A list of descriptive data tables prepared from the Cochabamba Rural Household Survey appear in Appendix A.

Although the calculations of net household and net household farm income are based on specific information on agricultural production and sales, the rural household survey does not provide reliable information on production (i.e. number of hectares under different crops or yields). The production survey conducted in the Chapare in 1993 provides more precise and detailed information on agricultural production in that region. The objective of the Chapare Production Survey is to create a reliable database that can be used for planning agricultural activities in the tropical region of the Department of Cochabamba. Data from the production survey also serve the purpose of tracking crop-specific contributions to generating increased employment and income within the Chapare.

The project monitoring and evaluation plan relies on the Chapare Production Survey for monitoring outcomes by crop at different stages of production and marketing. The production survey provides key information for indicators of all identified crops for tracking pre-production to post-harvest. It is also the source of information for the purpose-level indicator: "hectares of non-coca crops planted in the Chapare." A list of descriptive data tables prepared from the production survey appear in Appendix B.

The descriptive information from the surveys tells project management whether project objectives are being met. Descriptive information, without in-depth analysis, is appropriate for routine reporting and can be made available within 3-6 months after conducting the surveys. Purely descriptive data, however, do not inform project managers about which factors account for project impacts. A major part of the evaluation component of the suggested Monitoring and Evaluation plan will be accomplished through four special studies of the Rural Household Survey. Further analyses of the data from the household survey offer the opportunity for examining which programmatic interventions and

policy instruments are most successful and why. Several analyses of this kind are already underway for the 1991 household survey and should be repeated in 1995. They are:

- 1) Multivariate Assessment of the Potential Impact of Different Policy Instruments on Different Types of Rural Households. The multivariate analysis of the Rural Household Survey data provides project management with two types of knowledge: 1) what types of households can be expected to react differently to different development stimuli; 2) what impact different policy instruments can be expected to have on the different households.
- 2) Disaggregation by Gender and Other Variables of Labor Use with Rural Households. This analysis examines the use of labor within farm households. It focuses on patterns that emerge by gender, age, household size, farm size, region, and type of economic activity. In addition, by contrasting and melding sex-disaggregated information from the household survey with anthropological research on gendered relations of work in rural communities in Cochabamba, the paper develops a model for the sequenced use of quantitative and qualitative analysis in development planning.
- 3) Examination of Non-Farm Economic Activities of Rural Households and their Contribution to Net Household Income. This analysis examines the significance of non-farm employment as a source of income for rural households. It focuses on patterns that emerge by involvement/noninvolvement in coca production, other types of economic activity, gender, age, household size, farm size, region, etc. Economic development in terms of employment implies increasing complexity or diversification (increasing types of jobs). This study will include analysis of employment complexity in terms of proportion of household members employed by occupational category for rural Cochabamba, disaggregated by the Valleys and the Chapare.
- 4) Examination of Arrangements for marketing Farm Produce and Relationships between Market Access and Net Household Incomes. A basic premise of CORDEP is that the selection of agricultural alternatives to coca should be market driven. A corollary is that increased access to market for Cochabamba rural households will increase sales of alternative products which will contribute to higher household incomes. Therefore the project monitoring and evaluation plan includes "average time to market for rural households in

Cochabamba" as a key indicator for measuring the sustainability of alternative sources of income supported by the project. The Rural Household Survey indicates that for households without coca, higher income is associated with market proximity. For coca growers, on the other hand, incomes are higher for households farther from markets. Improved farm-to-market roads should reduce the time to market for non-coca products and be associated with sustainable income from non-coca activities. A special study of the Rural Household Survey data analyses time to market and the correlation between income and market proximity.

IV. How Impact Monitoring Can be Used

For project managers, impact indicators reported in the Action Plan and the SAR are often seen as extraneous, bureaucratic paperwork. These indicators are extraneous if they are only a part of the Mission management system and not of project management. The project-level impact monitoring and evaluation (M&E) plan can provide a context for the impact indicators reported to La Paz and Washington, and a conceptual link between the project's regional goal of increasing opportunities for income and employment and the broad Mission objective of reducing Bolivia's dependence on coca production.

The M&E plan specifies how project management wants to present this project and measure its accomplishments. It gives project management tools to defend its decisions about implementation and a basis for interpreting the indicators reported for the Action Plan. It also provides a basis for resisting attempts to redirect or redefine the project purpose.

In defining the terms for presenting the project, the M&E plan also creates the database with which the project will be evaluated. Lack of before and after quantitative information is often a problem in evaluation, and unless the project has the data to be used, evaluators seek information elsewhere and set their own standards for measuring the degree of project success.

Another important use of the plan is as a framework to organize project information. Because the five principal institutions involved in CORDEP have been operating relatively independently, there has been a duplication of both information and function. The plan provides for a central information base that all the institutions contribute to and tap. It also spells out how existing survey data can be used by the project.

The objective tree shows a common structure shared by the five project institutions. By specifying who provides information it helps identify interdependent functions. If the accomplishments of the project are tracked by the objective tree categories, the

CORDEP annual workplan also could be organized according to this tree. The workplan for each institution could then show how it contributes to the project workplan. This year each institution prepared a separate workplan that showed a relatively independent program.

V. Issues

For the M&E plan to be used, the key players in the project have to buy into it. This draft reflects the mandate to draw on existing data and minimize additional cost in data collection, and the consultants' understanding of project objectives. The following are suggested issues to be addressed by project management and the organizations responsible for the information in finalizing the plan.

1. Measuring impact depends on having baseline and follow-up measures for the indicators at regular intervals.

Baseline surveys have been completed, descriptive statistics have been reported, and follow-up surveys have been budgeted. The mechanisms for carrying out these surveys have not been specified.

For the indicators in the product programs, the plan relies on baseline information collected in the product and marketing profiles, and follow-up information to be provided by the marketing personnel at DAI and the product committees. Not all the information is available in all the profiles and plans. In most cases, product committees have not been formalized.

It might be useful for DAI to specify mechanisms and people to collect standardized market information. For product committees to be effective in this role, they should discuss how they will monitor their programs including who will have the responsibility for data gathering and reporting at various points in the process, and when the information will be reported and to whom. In both the market information and the product program monitoring, costs of monitoring, in time and money, could be explicitly budgeted in the workplans.

2. The draft plan does not present any indicators of the impact of CORDEP activities in three areas: national parks in the Chapare (PDAR and DAI); credit and capital formation (Agrocapital); social infrastructure activities (PDAR).

National parks were not included in this draft because there is no identified link to increased income and employment. Consideration could be given to how these activities can be monitored for their impact on sustainability and/or employment.

Credit and capital formation are not included except to the extent that the product programs will monitor whether credit is a constraint to implementation of this program. Consideration could be given to monitoring the relationship between small farmer impacts and availability of credit.

Social infrastructure activities (OCPs) are not included because it is assumed that these community projects are not expected to have an impact in terms of income and employment within the life of the project. Are they monitored for temporary employment creation?

3. In compliance with the project paper and the environmental assessment, CORDEP has developed an environmental monitoring system. The impacts of environmental assessments, mitigating measures, and direct investments in the natural resource base are measured for their capacity to sustain alternative sources of income and employment. Sound environmental and natural resource management underlies sustainability of all CORDEP income and employment generating project and on one level, impacts of inputs to insure sound environmental management are the same as the impacts of the programs themselves. Indicators of the direct impacts of these activities and of their interaction with income-generating activities can be drawn from the environmental monitoring plan.

4. Organizational strengthening is included as an output in the draft plan in recognition that sustainability of income and employment opportunities is a function in part of having an institutional structure in place to continue activities initiated by CORDEP. This aspect of the project (also discussed in the project paper) has not been explicitly developed, and targets and impact indicators have not been set. At the same time, there is considerable project activity that could be included under this category, such as the work with producers' associations and NGOs.

5. At several points in the draft plan, "special studies" are recommended to investigate impacts that (1) cannot be easily quantified, (2) imply too much cost for periodic monitoring, or (3) do not change rapidly enough for measuring at several points during the life of the project. Many of these studies consider qualitative and social (vs. economic) impacts. Specifying special studies in the M&E plan recognizes the importance of social analysis to success of the project but also imposes a discipline on this research by requiring that it be relevant project impact.

6. The draft plan does not include measures of the impact of training and extension activities. At the project level, training and extension are inputs and their impact is reflected in measures like number of hectares planted and farm income. The direct impact of training and extension could be measured by the

organizations implementing these activities like NGOs or IBTA/C. These organizations would track the specific behavior of the farmers trained or receiving technical assistance. For example, what proportion of the farmers attending the training course adopted new planting methods or improved on-farm storage?

VI. Implementation of the Plan

Next Steps and Responsibilities

If a decision is made to implement an M&E plan to document and track impacts, the next step is to assign responsibility for managing the central collection and reporting of the information. It has been suggested that this role be filled by DAI Monitoring and Evaluation personnel as a part of DAI's technical assistance function for the project. Monitoring the process indicators for the project can be a separate function from monitoring impact but process data should be made available for interpretation of impact.

A second and equally important task is to analyse the findings in economic and social terms and present this interpretation in a form usable to management and outsiders. This task probably cannot be filled by the same person who collects and reports the information. It might be covered by short-term technical consultancies.

If the plan is to be implemented, project management will have to build consensus and follow through with the organizations that will have to contribute to the plan. Unless the various players buy into the scheme it will not work. One possibility to achieve this consensus might be a workshop with representatives of the five institutions (possibly the people responsible for data management) to revise and negotiate the final format of the plan, and make choices about which indicators stay, who will supply what information in what form, etc. This negotiation process probably can be done more effectively for the entire project in a workshop format than through a series of meetings with each institution separately.

Finally, decisions will be needed about the timing of and responsibility for the next wave(s) of the Chapare Production Survey and the Rural Household Survey. A consensus seems to have been reached to have only one more wave of the Cochabamba Rural Household Survey, in 1995. There is less certainty about the Chapare Production Survey. The original suggestion was to repeat the survey every six months to pick up the two harvest periods and migrant populations in the Chapare. It would be possible to pick up the two groups, but with more time between the waves for each group, if the survey were repeated every 18 months. Although a production survey for the entire department would be desirable in defining links between Valley and Chapare rural

households, particularly in terms of temporal migration, it is probably not feasible under CORDEP. (The decision was made to monitor the impact of Valley programs only for program participants.) On the other hand, cost of a departmental survey could be cut considerably with a more efficient sampling frame, and a department-wide survey would eliminate the need to repeat the Chapare survey at six month intervals.

Timing

The impact data should be collected and reported so that they can feed into Mission reporting requirements (i.e., the Action Plan and the SAR). The draft M&E plan shows that most indicators for the product programs will be reported annually for this reason. If export and national sales continue to be required for the SAR, they will be collected twice a year.

Although the plan may appear to be long and complicated in the chart format, once it is in place it will require data compilation efforts for a relatively short period of time once or twice a year. Filling in the baseline values, for example, took no more than eight hours even without a system. Most of the information (except for the surveys) will be recorded as a part of on-going project activities. Analysis and interpretation will require additional time, as will presentation of results.

Conclusion

In finalizing the plan, clearly choices will have to be made about what and how much to include. Factors to guide these choices might include:

- the need to present a clear picture of project achievements as project implementors see them;
- the cost of data collection and analysis in money, time, and personnel;
- the committment from implementing institutions;
- A.I.D. reporting requirements and priorities;
- the need to measure and demonstrate the impact on people in the region; and,
- the need to have enough types of information to interpret the impacts.

This plan is to collect impact data for monitoring. At the same time it creates a database to be used for evaluation but does not specifically spell out the Scope of Work for the evaluation, and does not discuss qualitative information that also may be needed to assess the broad impact of the project as a whole.

8/93

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DRAFT

Plan for Monitoring and Evaluation of Impact of CORDEP

PURPOSE: To develop sustainable alternative sources of income and employment for people in the project area.

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|---|--|----------|---------------------------|--------------------------------|----------------|
| To develop sustainable alternative sources of income and employment for people in the project area. | Average net rural household income for CBBA (and for Valleys & Chapare) | increase | Rural Household Survey | baseline (1991); 1995 | DAI |
| | Average net rural household income from non-coca activities for CBBA, Valleys, Chapare | increase | Rural Household Survey | baseline (1991); 1995 | DAI |
| (SAR indicators) | Non-coca export sales; National sales * | see note | baseline reported to AP | baseline (1991) | DAI |
| Develop alternative sources of income (agricultural production - Chapare) | has. of non-coca crops planted in the Chapare * | increase | Chapare production survey | baseline (1993); every 18 mos. | DAI |

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|---|---|--------|-------------|--------|----------------|
| Develop alternative sources of employment | Economic development in terms of employment implies increasing complexity or diversification (increasing types of jobs). Studies produced from the Rural Household Survey should include analysis of employment complexity in terms of proportion employed by occupational category for CBBA, the Valleys, and the Chapare. | | | | |
| Develop sustainable sources | Narrative based on examination of the consistency over time of the direction of income, employment, and production indicators. | | | | |

* Has. cultivated of non-coca crops, Chapare, is one of the purpose-level indicators currently reported for the SAR. The other SAR purpose-level indicators are: Non-traditional Export Market Sales (\$) and National Market Sales (\$). CORDEP is also responsible for reporting has. cultivated and export sales as program output indicators for Strategic Objective 1 in the Action Plan. In the past, sales were calculated for a discrete set of products (e.g., for export sales: pineapples, bananas, tumeric, ginger). It is not clear how the total will be calculated in the future since sales by product will not be reported. The indicator is difficult to interpret if the products included in the calculation change from year to year.

It is not clear why sales are to be reported every six months (for SAR and AP) isnce certain crops are harvested once a year. In will be difficult to attribute increases and decreases in this indicator since changes could result from a variety of factors including supply and demand, climate, lack of harvest, mix of crops, etc.

The SAR also calls for hectares of "alternative" crops. This terminology is changed here to "non-coca" to make it consistent with the Action Plan indicator.

Note that none of these indicators is a measure of impact on people as stated in the project purpose. Aggregation of export and national sales across crops makes it impossible to divide by number of producers to get even a rough indicator of average gross income. In addition, hectares planted is not a comparable measure across crops.

Note: The column "RESPONSIBILITY" includes responsibility for data collection, analysis, and reporting.

SUMMARY TABLE FOR SUB-PURPOSE

SUB-PURPOSE : Increase farm income from non-coca crops and income from employment, and improve the capacity to sustain alternative sources of income and employment.

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|--|---|----------|------------------------|-----------------------|----------------|
| Increase non-coca household income from sustainable agricultural production activities | Average net cash farm income for rural farm households (CBBA, Valleys, Chapare) | increase | Rural Household Survey | baseline (1991); 1995 | DAI |
| Increase non-coca paid employment for rural Cochabamba household members | Average net cash non-farm income for rural households (CBBA, Valleys, Chapare) | increase | Rural Household Surey | baseline (1991); 1995 | DAI |
| Improve capacity to sustain non-coca sources of income and employment | Consistency over time of increases in income, employment, and production. | | | | |

The sub-purpose level separates the two sources of household income that are the focus of the project and provides a link to the project activities and their impacts (output level). At each level of the objective tree attribution of impacts to the project becomes more direct.

Separating out the two sources of household income poses important analytical questions that could be the subject of a special study of the overall impact of the project. For example, what would be the interpretation if we found: fewer farm households and higher income; more farm households and higher income; fewer farm households and lower income; higher non-farm income for farm households.

SUB-PURPOSE: Increase non-coca income from sustainable agricultural production for rural Cochabamba households

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|---|---|-----------------------------------|--|-----------------------|------------------------------------|
| Sub-purpose: increase non-coca income from sustainable agricultural production | Average net cash farm income for rural farm households (CBBA, Valleys, Chapare) | increase | Rural Household Survey | baseline (1991); 1995 | DAI |
| | # farm households (CBBA, Valleys, Chapare); # non-farm households | ? (See note on previous chart) | Rural Household Survey | baseline (1991); 1995 | DAI |
| For each product program: | The following indicators will be developed for each product program. The principal impact for each crop program should be net cash income to the producer. Indicators also are suggested for links in the product chain to (1) document where problems are occurring and to (2) show progress even if incomes are not increasing.* Valley crops will be monitored only for program participants on the basis of NGO monitoring data. Chapare crops will be monitored for both participants, using IBTA/C and NGO data, and for the region, using the Chapare Production Survey. | | | | |
| | net income/producer For program participants: average net cash income/year/ha. (cash in - cash out)** | increase | Marketing plan shows predicted values. Project monitoring will fill in actuals. | annual | DAI (IBTA/C and Planning Assis) |

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|----------------|--|--|--|---|--|
| Pre-production | Is program demand for the following inputs for farmers being met? (No; In part; Yes) (If yes, by whom?) - seeds - fertilizer - pesticides - TA (extension) - capital (credit) | yes, sustainable source (e.g, IBTA, private sector) | project monitoring | semi-annual | chair of product committee |
| | for program participants: aver. % UPA planted in this crop | ? avoid risk due to mono-cropping | IBTA/C and NGOs | annual | IBTA/C and Planning Assistance |
| | For program participants: -# UPAs in program; -# has. planted; -# "tecnified" has. For Chapare: -# has. planted; | (varies with crop) | IBTA/C and NGOs Chapare Production Survey | annual baseline (1993); every 18 mos. | IBTA/C and Planning Assistance DAI |
| Produccion | (indicators of production and productivity may vary by crop) For program participants: # has. harvested; quantity harvested For Chapare: # has. harvested; quantity harvested | (varies with crop) | IBTA/C and NGOs Chapare Production Survey | annual baseline (1993); every 18 mos. | IBTA/C and Planning Assistance DAI (Product committee to define measure) |

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|----------------------------|--|---|---|--|---|
| Post-cosecha (productores) | <p>For program participants: quantity sold - for export markets - for local markets - loss - as proportion of quantity harvested</p> <p>For Chapare: Prod. Survey Q13 - Destino a la Produccion: produccion-ventas; "otro" usually is "loss" and could be asked directly in re-survey</p> | <p>(varies with crop) increased sales (decreased loss)</p> | <p>IBTA/C and NGOs (note: NGOs do not currently collect this info.)</p> <p>Chapare Production Survey</p> | <p>annual</p> <p>baseline (1993); every 18 mos.</p> | <p>IBTA/C and Planning Assistance</p> <p>DAI</p> |
| Preparacion | <p>value added in Chapare (\$, % margin)</p> <p>For local packing, storage, processing org'n or company: - net value of sales; - quantity sold as % quantity purchased from farmers; - # employees (M/F, seasonal, permanent)</p> | <p>increasing proportion</p> <p>increase increase increase</p> | <p>baseline in marketing plan;</p> <p>project monitoring</p> | <p>annual</p> | <p>DAI marketing unit or chair of product committee</p> |

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|------------------|---|----------|--------------------|--|--------------------|
| Transporte | cost/unit shipped | decrease | project monitoring | annual | DAI marketing unit |
| Comercializacion | \$ export sales; \$ national sales;*** Quantity exported; Quantity to national markets | increase | project monitoring | annual (semi-annual if continues to be used as SAR indicator) | DAI marketing unit |

* The first stage in the production chain (Base de Recursos) is not included in this table since the inputs do not lead directly to increased farm income in the short-term, and they are usually not crop-specific. Indicators of these activities are included in the sub-purpose "capacity to sustain...".

** This indicator is not satisfactory unless it takes account of amount of time in the program. Adding new farmers each year would lower average net cash income because of problems of up front vs. annual costs, and the period before new crops start producing. It also does not take account of the importance of consistency of income which is of crucial importance to small farmers.

*** According to the SAR, export sales are calculated as farmgate price x quantity sold x 2.5. National sales are farmgate price x (total production - quantity exported) x 2.5. Using the 2.5 multiplier approximates retail price but retains price paid to the farmer as the base. In the past, sales were calculated for a discrete set of products (e.g., for export sales: pineapples, bananas, tumeric, ginger). It is not clear how the total will be calculated in the future since sales by product will not be reported. The indicator is difficult to interpret if the products included in the calculation change from year to year.

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|---|---|----------|---|--------|--|
| Other programs to increase net farm income: | | | | | |
| Water management (irrigation and drainage) | yields on plots served by water infrastructure; | increase | case studies | | NGO monitoring DAI - special studies (e.g. Hanrahan cost/ benefit analysis; monitoring of experimental & control plots) |
| Livestock | For program participants: average net annual income from livestock & products | increase | baseline from marketing study project monitoring | annual | chair of product committee |
| | Livestock will be treated like other priority products but (as in the case of Valley crops) will be monitored only for program participants. Other indicators should be defined when the shape of the program and the links in the "production process" are clear. Net income measures will require, at a minimum, cost and sales information. | | | | |
| Forest management and agroforestry | To be consistent with other product programs, an indicator is needed of contribution to annual household income. The measure depends on whether the program focuses on agroforestry, forest mgmt., or marketing. Other indicators also should be defined for the links in the "production process." Illustrative indicators for Chapare programs in agroforestry, forest management, and forest product marketing follow. | | | | |

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|----------|---|--------|--------------------|------------------------------|--------------------|
| | (agroforestry) For program participants: -# hsls planting trees; # trees established at end of project | | project monitoring | -annual -end of project | DAI, IBTA/C (PDAR) |
| | (forest management) -# has. under effective forest management; -# hsls. practicing effective mgmt. (These indicators could be monitored under the sustainability sub-purpose.) | | project monitoring | ?? | DAI, PDAR |
| | (marketing) price/unit to producer; total sales (\$); value added in the Chapare (# trees cut and form of payment is included in Chapare Production Survey) | | | baseline from marketing plan | DAI |

SUB-PURPOSE: To improve the capacity to sustain non-coca income and employment

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|--|---|--|-------------|--------|----------------|
| Sub-purpose: improve capacity to sustain | Consistency in the level and direction of change in income, employment, and production. | | | | |
| Maintain and enhance the environmental and natural resource base | ENVIRONMENTAL MONITORING PLAN * | | | | |
| Strengthen local and economic organizations | # and type of organizations strengthened | Number & type of organizations targeted by CORDEP can be set through an assessment of the org'nal. infrastructure needed to sustain income and employment.** | | | ?? |
| | For each type of organization, indicators could be developed to form a scale of sustainability. Illustrative indicators for producer associations, private businesses, and NGOs follow. Clearly these lists are not complete and no attempt has been made to scale the items. | | | | |

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|-----------------------|---|--------|--|--------|---|
| producer associations | Possible measures of org'l viability and capacity to continue economic activities: -# members (M/F) -approved bylaws -personaria juridic -level of economic activity:purchases, sales, storage, processing/packing -capital resources -profit/earnings to members | | project monitoring baseline from product profiles?? | annual | DAI, Planning Assistance, & Agrocapital |
| NGOs | Possible measures of capacity to deliver agricul. support services: -# yrs. operating; -aver. budget over past 5 years; -number of sources of funds; -value of infrastructure and capital; -adequate accounting system -staff turnover | | NGO profiles from project review and subsequent evaluation | annual | Planning Assistance |
| Private businesses | Indicators of economic viability like those used by Agrocapital for credit or investment | | Business profiles from Agrocapital or DAI | annual | DAI marketing unit |

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|---|---|----------|------------------------|----------------------|----------------|
| Road improvement to support economic and social development | Average time to market for rural households in CBBA, Valleys, Chapare *** | decrease | Rural Household Survey | baseline (1991) 1995 | DAI |
| | Special studies of selected roads to measure cost/benefit in economic and social terms, similar to the 1990 Paulson study of the Khuri road. [PDAR/SNC feasibility studies include projections of social and economic impacts.] | | | | DAI |

* The environmental monitoring plan being developed by Greg Minnick should fold into the overall project monitoring and evaluation plan. Sound environmental and natural resource management underlies sustainability of all CORDEP income and employment generating projects and in one sense, impacts of inputs to ensure sound management are the same as the impacts of the programs themselves.

** CORDEP does not work with all types of local organizations, and in some cases the project simply uses local organizations as vehicles for their activities and in others CORDEP seeks to strengthen local structures so that they continue to implement these activities after CORDEP is finished. The project paper identifies "local, civic, communal, and economic organizations." Based on conversations with project personnel, we have suggested possible indicators of levels of organizational capacity for three types of organizations, producer associations and NGOs. Encouraging and strengthening private businesses has been added. NGOs are included for illustrative purposes because of the importance given to NGO involvement in AID programs under the new A.I.D. Administrator.

*** The Rural Household Survey indicates that for households without coca, higher income is associated with market proximity. For coca growers, on the other hand, incomes are higher for households farther from markets. Improved farm to market roads should reduce the time to market for non-coca activities. A special study of the Rural Household Survey data analyses time to market and the correlation between income and market proximity. "Time to market" also can serve as an indicator of time for shopping, medical care, access to services, etc.

SUB-PURPOSE: Increase non-coca paid employment for rural Cochabamba household members.

| ACTIVITY | INDICATOR | TARGET | DATA SOURCE | TIMING | RESPONSIBILITY |
|---|---|----------|--|---|--|
| Increase non-coca paid employment for rural CBBA hslid. members | Average net non-farm cash income for rural households (CBBA, Valleys, Chapare) | increase | Rural Household Survey | baseline (1991); 1995 | DAI |
| Generate short-term employment from urban, social, & road infrastructure | # employed (M/F); aver. length of employment (M/F); aver. daily wage (M/F) | | project monitoring | quarterly; 1991 baseline reported in AP | PDAR (SNC, contractors) |
| Generate medium- and long-term employment thru industry, agri-business, transport | For Chapare: # private sector firms; # employees (M/F) in private sector firms | increase | commercial electric hook-ups; survey of firms; data by product on processing & marketing | baseline?? annual | DAI (chairs of product committees?) |
| | Since no other measures are included of paid farm labor, special studies are recommended for selected crops of the labor requirements (number employees, composition of labor force) for traditional vs. improved (tecnified) cropping methods. Farm labor may be an expanding source of household income with the emphasis on and expansion of export agriculture. | | | | |

Illustrative Baseline Values for CORDEP Impact Monitoring and Evaluation Plan

| ACTIVITY | INDICATOR | BASELINE VALUE | DATA SOURCE | COMMENTS |
|---|--|--|---|---|
| Purpose: Develop sustainable alternative sources of income and employment | Average net rural household income (annual) for CBBA, Valleys, Chapare | CBBA: \$1350 Valleys: \$1024 Chapare: \$4271 | 1991 Rural Household Survey Preliminary Findings, p.11 (\$1=Bs3.64) | In this publication "coca growing region" is the Chapare; "non-coca growing region" is the Highland/Valleys |
| | Average net rural household non-coca income | | 1991 Rural Household Survey tables not published | This calculation should be included in the descriptive tables for the 1995 re-survey. |
| | Non-coca export market sales | SAR (10/92-3/93): \$10,590,250 | baseline reported for Action Plan & SAR, (10/92-3/93) | Not clear how CORDEP will calculate. In past was sum of sales of four products. See note on Plan. |
| | Non-coca national market sales | SAR (10/92-3/93): \$8,121,895 | baseline reported for SAR (10/92-3/93) | See note on Plan. |

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| ACTIVITY | INDICATOR | BASELINE VALUE | DATA SOURCE | COMMENTS |
|---|--|---|--|---|
| | Has. of non-coca crops planted in the Chapare | 63,059-25,140= 37,919 has. planted in non-coca crops | baseline 1993 from Chapare Production Survey | Baseline will change for AP if Prod. Survey used as source. Here estimate from Survey is total has. cultivated - has. with some coca |
| | Study of employment complexity | | 1991 Rural Household Survey | baseline study completed, 1993 |
| | Examination of consistency of change in income and employment | | | review indicators in 1994 and 1996 |
| Sub-Purpose: Increase non-coca income from sustainable ag. production | Average net cash farm income: rural farm households (CBBA, Valleys, Chapare) | CBBA: \$299 Valleys: \$118 Chapare: \$1748 (annual cash income) | 1991 Rural Household Survey Preliminary Findings, p.9 (\$1=Bs3.64) | This includes only farm hshlds. with land. Could be calculated for all farm hshlds. Problem: aver. includes both coca and non-coca farm income. |
| | # farm and non-farm households (CBBA, Valleys, Chapare) | CBBA: farm: 96667 non-farm:15481 | 1991 Rural Household Survey Preliminary Findings, p.7 | No. farm and non-farm hshlds. for Valleys and Chapare not found in published tables. |

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| ACTIVITY | INDICATOR | BASELINE VALUE | DATA SOURCE | COMMENTS |
|---------------------------|--|---|--|--|
| Product Programs: Bananas | | | | Bananas selected because USAID has funded program for some time, detail data gathered in Prod. Survey, marketing plan available. |
| | for program participants: net cash income per year | | | Not satisfactory indicator unless divide participants by # yrs. in program |
| | Is program demand for the following inputs being met? (yes-in part-no) (if yes, by whom) | seeds fertilizer pesticides TA (extension) capital/credit | annual evaluation by product committee | 1993 baseline to be recorded by product committee. |
| | # UPAs with bananas | compact plantings: 10,367 dispersed: ?? | 1993 Chapare Production Survey, Resultados de la Encuesta, Cuadros 5,6 | Cannot get # UPAs with dispersed plantings because some may have both new and producing plants. CORDEP may only be interested in compact planting. |
| | For program participants: aver % UPA planted in bananas | | 1993 baseline | Can IBTA/C or UNABANA provide this information? |

| ACTIVITY | INDICATOR | BASELINE VALUE | DATA SOURCE | COMMENTS |
|----------|--|---|--|---|
| | For program participants: # has. planted; # "tecnified" has. | | IBTA/C 1993 baseline | IBTA/C will define "tecnified" |
| | # has. planted in Chapare | in compact plantings: 5946 has. in disperse plantings: 112,882 plants | 1993 Chapare Production Survey, Resultados de la Encuesta, Cuadro 18 (new plants + plants in production) | Would it be legitimate to estimate # has. represented by # plants in disperse holdings, with # plants/ aver. # plants per ha.)? |
| | For program participants: aver. cabezas/ha. harvested aver. cabezas/caja | | IBTA/C (has. in production) 1993 baseline | UNABANA may be best source for aver. cabezas/caja |
| | For Chapare: -aver. cabezas/ha harvested -total # cabezas harvested | compact plantings: 356 cbs/ha 5,160,000cbs. dispersed: 205,403 cbs. | 1993 Chapare Production Survey, Resultados de la Encuesta, Cuadros 5,6 | These tables combine bananas & plantains. An average figure could be calculated for bananas using Cuadro 18. |

| ACTIVITY | INDICATOR | BASELINE VALUE | DATA SOURCE | COMMENTS |
|----------|---|---|--|--|
| | For program participants: aver. quantity sold -for export mkts. -for local mkts. -loss -as % quan.harvested | | IBTA/C 1993 baseline | At the farm level, may be better indicators for bananas such as size or quality of cabezas. |
| | For Chapare: -cabezas sold/ cabezas harvested -cabezas with unspecified use ("otro") = loss | 4,057,220 cbs/ 5,365,023cbs= 75.6% sold otro = 811,714 cbs. (15% of cbs harvested) | 1993 Chapare Production Survey, Resultados de la Encuesta, Cuadro 7 | Table 7 includes both bananas and platanos. May want to consider additional indicator from Table 7, # UPAs with sales. |
| | For local storage, packing, or processing org'ns.: -net value of sales -quantity sold/ quantity purchased from farmers (loss) -no. employees (M/F; seasonal, permanent) | | 1992 or 1993 baseline from UNABANA | Banana marketing plan does not include this info. May want to distinguish export and national sales. |

| ACTIVITY | INDICATOR | BASELINE VALUE | DATA SOURCE | COMMENTS |
|----------|---------------------------------------|----------------|---|--|
| | aver. transport cost per unit shipped | | DAI marketing unit. 1992 or 1993 baseline | Banana Marketing Plan does not include this data. May want to distinguish cost for export and national sales. |
| | \$ export sales | \$128,746 | SAR (10/92-3/93) baseline reported for SAR | Not shown in Marketing Plan. Source of baseline figure not specified. |
| | \$ national sales | | Included as one product in baseline reported in SAR (10/92-3/93). | Could estimate baseline value based on quantity shipped. |
| | # boxes of 22 kg exported; | 57,750 boxes | Marketing Plan estimate 1993 (June-Dec only) | UNABANA will be source of this info. for AP and SAR. Chapare Prod. Survey has measure of Bs./Ch and quan. sold for Chapare (Cuadro 7). |

| ACTIVITY | INDICATOR | BASELINE VALUE | DATA SOURCE | COMMENTS |
|---|---|---|--|---|
| | # boxes of 22 kg for national markets | 119,000 boxes | Marketing Plan estimate 1993 (June-Dec only) | |
| Sub-purpose: Improve the capacity to sustain non-coca income & employment | Examination of consistency of change in income and employment | | | review indicators in 1994 and 1996 |
| | Envir'l. & natural resource base maintained and enhanced | | | indicator not yet specified |
| | # and type of local organizations strengthened | | | indicator not yet specified |
| | Average time to market for rural households (CBBA, Valley, Chapare) Average time to market for UPAs in Chapare | Median time is less than 1 hr. Aver. cannot be calculated from published data. | Baseline 1991 Rural Household Survey unpublished data; 1993 baseline Chapare Production Survey, Resultados, Cuadro 27 | Data available from 1993 study from Hsld. Survey data. Should be included in descriptive statistics from next survey. Data from Hsld. Survey and Prod. Survey are not interchangeable because different units of analysis |

| ACTIVITY | INDICATOR | BASELINE VALUE | DATA SOURCE | COMMENTS |
|--|--|--|---|---|
| Sub-purpose: Increase non-coca paid employment | Average net non-farm cash income for rural households (CBBA, Valley, Chapare) | <u>for farm hshlds with land:</u> CBBA- \$391 Valley- \$270 Chapare- \$1356 | 1991 Rural Household Survey, Preliminary Findings, p. 8,9 (\$1=Bs3.64) | Aver. non-farm cash income for all rural hshlds. cannot be calculated from published data. Available in unpublished data. |
| | Temporary employment: -# employed (M/F) -aver. length of employment (M/F) -aver. daily wage (M/F) | | 1991 baseline reported in 1993 Action Plan (Data do not include length of employment or wage) | The number reported in the AP includes more than CORDEP generated employment but the CORDEP data should be available from C. Comacho. |
| | Medium and long-term employment: -# private sector firms in Chapare -# permanent employees (M/F) in private sector firms in Chapare | | | These data are not presently being collected. It may be more manageable to collect only employment information by product programs. |

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APPENDIX A
**LIST OF DESCRIPTIVE DATA TABLES
FROM THE COCHABAMBA RURAL HOUSEHOLD SURVEY**

1. Population by Sex and Age
2. Percentage of Population 6 Years and Older by Sex and Level of Education
3. Percentage Distribution of Rural Households by Source of Water, Water Provider, Source of Fuel, and Type of Lighting
4. Percentage of Children under 5 Vaccinated against Various Diseases
5. Presence of Vinchucas by Householdss
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8. Farm Household Characteristics by Farm Size (Disaggregated by Valleys/Highlands and Tropics)
9. Average Net Farm Income of Farm Households by Technical Assistance, Agricultural Credit, and Land Tenancy
10. Average Net Household Incomes (Disaggregated by Coca Growing and Non-coca Growing areas; gender of household head; farm and non-farm households)
11. Percentage Distribution of Farm Households with Livestock by Different Types of Livestock.
12. Percentage Distribution of Farm Households by Time and Distance to Market and By Distance ot Trunk Road
13. Percentage Distribution of Perceived Needs

Encuesta Agropecuaria

APPENDIX B

LISTA DE CUADROS

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